

# **STEM Blended Education through Partnership**

**Idaho STEM Aerospace Scholars  
– NASA Aerospace Scholars affiliate**

**iNACOL - VSS  
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# **NASA High School Aerospace Scholars Overview**

# NASA High School Aerospace Scholars Successes

- Texas model replicated in 4 states
- 17 weeks offered in 5 states to 726 students  
Summer 2010
- Each student commits ~ 160 hours to participate in the on-line curriculum and summer experience
- 3,700+ alumni
- Statistics
  - 87% responded “This experience inspired me to learn more STEM.”
  - 85% are interested in science careers
  - 83% are interested in engineering careers



# Texas Aerospace Scholars Video

# NASA High School Aerospace Scholars Benefits

- Great return on investment
  - Strategic partnerships
  - JSC Partner/NASA dollars spent ratio 7:1
- Students nominated by their state legislators
- Educator involvement provides the multiplier effect
- Pipeline Activity



# What is Texas High School Aerospace Scholars (HAS)?

- Opportunity for high school juniors
- Space exploration is the inspiration
- Immersive multi-month commitment
  - Introduces students to NASA and its mission
  - Six-day on-site culminating visit
- JSC partners with
  - State government
  - All Texas high schools
  - Universities
  - Education foundations





# What is Texas High School Aerospace Scholars (HAS)?

- Lessons are aligned to State and National standards
- 8 on-site summer weeks offered
- Mentored by NASA and co-op/ interns
- Provided at no cost to students
- Eligible for one year science elective for high school graduation



# What is Idaho STEM Aerospace Scholars (ISAS)?

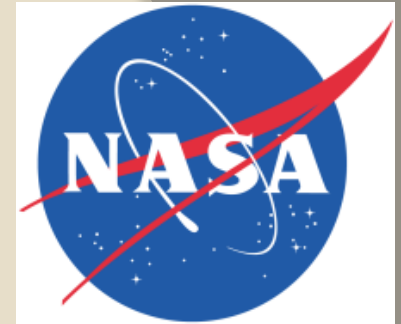
- ⦿ A statewide, competitive program that allows high school juniors to take an interactive, online course highlighting science and aerospace exploration along with technology, engineering and math, culminating in a summer residential academy at Boise State University and NASA Ames Research Center in California.



# ISAS Partners



Idaho  
Digital Learning



University of Idaho



# Enhancing a Successful NASA Program

- ◉ The State Department of Education signed a memorandum of agreement with NASA Johnson Space Center to adapt their Texas High School Aerospace Scholars program for use with Idaho students.
- ◉ ISAS incorporates NASA developed content within an IDLA developed 16 week online learning course to support STEM education and highlight Idaho careers in STEM related fields. The culminating activity will be the opportunity for students to attend a summer academy and work with STEM professionals both in Idaho and at a NASA research facility.

# ISAS Timeline

- May 29, 2009 - Presentation by NASA to Idaho stakeholders regarding Aerospace Scholars Programs.
- June 2, 2009 - Steering Committee formed to create 2010 pilot year funded by SDE and in-kind contributions from ISAS partners.
- September 25, 2009 - SDE submits application for NASA K-12 CAN Grant for continued program funding beyond 2010.
- December 1, 2009 - SDE receives NASA K-12 CAN Grant award to expand and fund ISAS program for 2011 and 2012.
- January 22, 2010 - IDLA online course begins with 70 students participating in ISAS program for 2010.
- August 1 – 7 resident Academy at BSU and NASA Ames

# NASA k-12 CAN Grant

- ⦿ Increase to 200 students and (2) Summer Academies for ISAS 2011
- ⦿ Increase to 400 students and (3) Summer Academies for ISAS 2012
- ⦿ Cultivate student interest in STEM fields
- ⦿ Connect to more Idaho STEM related business and industry
- ⦿ Collaborate with Idaho Higher Education in STEM education

# Who can participate?

- ⦿ Any Idaho high school junior who is an Idaho resident and U.S. citizen.
  - Minimum GPA of 2.7
  - At least 16 years old with parental permission
  - Internet and email access

# Components of ISAS Program

- ◎ Online course delivered by IDLA incorporating NASA curriculum along with Idaho STEM content
- ◎ Regional “Capstone” events in Moscow, Idaho Falls and Boise for all participants
- ◎ Summer Academy in Boise and at NASA Ames for 44 qualifying ISAS participants



# Regional Capstone Events

- ◎ ISAS scholars get hands-on experiences and exposure to Idaho STEM opportunities
  - June 10 Southern Idaho (Boise – Gowen Field)
  - June 14 Eastern Idaho (Idaho Falls - Center for Advanced Energy Studies)
  - June 16 Northern Idaho (Moscow - Univ. of Idaho)

# IDLA online course

## ◎ Course Development

- Tailored NASA content for Idaho
  - Engaging activities for students to interact with content at a higher level of thinking
  - Quality student interactions and teamwork opportunities
  - Connections for students to Idaho industry

## ◎ Course Delivery

- Instruction and grading taking place
- Students utilizing Idaho capabilities

# Webinars with STEM Experts

- ◉ Barbara Morgan – Boise State University  
Welcome Video about NASA
- ◉ Jacob Cook , NASA Johnson Space Center  
Former Texas Aerospace Scholar talks about his experience and what led him to become an aerospace engineer
- ◉ Dean Klein, Micron Technology  
Seemingly "small" contributions that make a big difference in advancing technology
- ◉ Tony Leavitt, NASA Ames Research Center  
Current missions and new technologies to bring humans to the moon/Mars and build a laboratory base
- ◉ Dr. Steven D. Howe, INL – Center for Space Nuclear Research  
Using nuclear energy sources for unmanned and manned space missions and systems of the future

# Summer Academy

- ◎ 44 students selected based on performance in the online course
- ◎ August 1 – 7 Academy at BSU/NASA Ames
  - Students explore Idaho STEM and NASA content
  - Mentors, teachers and industry experts assist student teams with rigorous NASA-related engineering design project
  - Scholars travel to NASA Ames Research Center
  - Scholars return to BSU for project completion and presentations to parents and guests

# **Where does online learning fit in?**

- Broad dissemination**
- Consolidation of services**
- Curriculum personalization and sustainability**

# How can you get started?

- **Find the vision**

- Find the right national or state program to adopt
- Define your own program vision or idea

- **Determine the stakeholders**

- **Determine the resources for dissemination**



# How can you get started?

- **Bring the partners together**
  - Do your research
    - Know what it'll take to be successful
  - Come with a plan and a purpose
  - Present the “glitter” of the innovative program
    - Excitement and benefits to students
    - Benefits to partners
  - Present the needs for program success
    - Why are the partners crucial to the program success?

How can you get started?

*Seize the Day!!*

# ISAS Partners

Boise State University  
College of Western Idaho  
Discovery Center of Idaho  
Federal Aviation Administration  
Hewlett-Packard  
Idaho Air National Guard  
Idaho Digital Learning Academy  
Idaho Div of Prof-Technical Ed.

Idaho National Laboratory  
Idaho Power Company  
Idaho State Dept. of Education  
Idaho State University  
Local School Districts  
Micron Technology Foundation  
NASA  
University of Idaho

# Who are your Partners?

State Department of Education  
State Department of Labor  
State Department of Career and  
Technical Education  
State Department of Lands  
Governor's office  
Local legislators  
Other governmental entities  
Local manufacturing organizations  
Local engineering organizations  
Local research organizations  
Local industrial organizations  
Local commercial organizations  
Local media outlets

Utilities providers  
Research laboratories  
Universities and colleges  
NASA  
National Science Foundation  
National Society of Professional  
Engineers  
Other Professional groups – local  
and national  
National STEM initiatives  
State school districts and educators  
State distance education providers  
Educational technology providers

# Contact Information

## Idaho STEM Aerospace Scholars:

<http://www.sde.idaho.gov/site/science/ISAS/index.htm>

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